Tennessee Apiarist's Update

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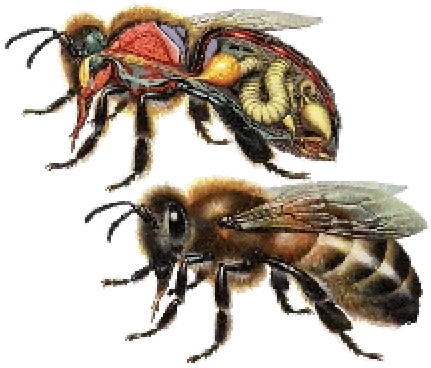
August 2000



Tennessee's State Agricultural Insect

The official state agricultural insect is the honeybee, designated by Public Chapter 725 of the Acts of 1990.

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Under the General Provision of the Tennessee Apiary Act of 1995 it is stated that "…honeybees perform a pollination function that is essential to the propagation of many species of flowering plants in Tennessee. These flowering plants include many agricultural crops, wildflowers, and forest plants that are of great importance to all Tennesseans, and the honeybees are the major pollinator for most of these plants. Therefore, the state should take appropriate actions to help assure the continued availability of an adequate population of honeybee pollinators." This, therefore is the mission of the Apiary program in Tennessee. Through an inspection program, maintenance of the beekeeper registration files, and educational seminars, we hope to accomplish this goal.

Tennessee's Apiary Program

APIARY ANNUAL REPORT

The honey flows in Tennessee in 1999 were variable due to weather. There was an early spring build-up of colonies due to warm temperatures that were followed by cooler temperatures. The cooler temperatures kept the bees in the hive and when warmer temperatures returned, many colonies began swarming (especially in West Tennessee). In the spring, there seemed to be good nectar flows from cherry and especially the black locust. The black locust nectar flow was the best many people had seen in years. The tulip poplar honey crop was spotty in different areas reflecting the pattern of rain showers. The clover nectar flow was spotty due to showers and the sourwood nectar flow was negligible due to July rains on the Plateau. A little sourwood honey was made in the eastern mountains. By mid-summer the state was in a severe drought. In West Tennessee, the soybean/cotton honey flow was not as good as expected, due to the dry weather, but in some areas about a 1/2 crop was produced. The drought caused many colonies that had been robbed for honey to go into starvation conditions. The fall nectar flows from goldenrod, astors and other weeds were delayed because of the continued dry weather and never came to some areas of West Tennessee. Many colonies needed feeding though fall and into the winter.

In East Tennessee in 1999, we found 2 new cases of AFB in Knox County. No new cases of AFB were found in Middle Tennessee. In West Tennessee, AFB was found in two apiaries belonging to the same beekeeper in Dyer and Lake Counties.

In 1999, evidence of increases in varroa mite populations was found by mid-August in very some colonies. This was unlike 1998 when much lower populations of the mites were found in colonies in August.

We had no reports of the small hive beetle (SHB) being found in Tennessee in 1999. Three possible SHB sightings proved to be other closely related beetles upon microscopic inspection. Tracheal mites were present in some samples that were

microscopically examined in the late fall. The winter of 1999-2000 did produce many colony losses attributed to these mites.

During the first weeks in August, 1999 the Boll Weevil Eradication Program (BWEP; joint USDA and state project) resumed spraying in southern West Tennessee. Two beekeepers reported problems with bees being killed by spraying near colonies. One beekeeper in Fayette County contacted my office and she was given the BWEP office number to call in Somerville. With a follow-up call I found her satisfied with the arrangements made by BWEP to change their spray schedule in her area. The other beekeeper in Tipton County maintains his own contact with the BWEP, Brighton office, and forwards information on his colonies to them.

In 2000, early spring build-up of colonies due to warm temperatures that were followed by cooler temperatures was again the pattern. Swarming after the weather warmed was again a problem this year. April rains in East Tennessee slowed down nectar flows and contributed to swarming by keeping the bees in the hives. Tulip poplar flows were good in some areas depending on weather. The black locust flows were not as good as in 1999, but some areas made locust honey. Vetch, clover, and blackberries seemed to yield well in some areas in 2000. Showers in Middle Tennessee were spotty and honey yields were less than expected due to the dry weather, although yields were up from last year's drought conditions. In West Tennessee, a good crop of spring honey was made with clover probably being the major contributor. Swarming was also a problem in West Tennessee.
The sourwood flows, that have recently ended, seemed to be very good in both the eastern mountains and on the plateau. I have tasted honey made in both places and it seems to be mostly sourwood with a little sumac included. Depending on location, some of this years sourwood also has some clover in it. This was probably due to the occurrence of thunder showers in the eastern part of the state, that kept enough moisture in the ground through July to allow the clovers to continue to yield.

At this writing, we have found 2 new cases of American foulbrood in East Tennessee involving 5 colonies and 3 new cases of foulbrood involving 11 colonies.

In 2000, I have not found significant numbers of varroa mites in the colonies inspected. I believe that Tennessee beekeepers are following the recommended treatments and have reduced the varroa mite population in the state significantly.
Tracheal mites still see to be our biggest problem, the invisible killers. Grease patties and menthol have only had limited success in controlling the tracheal mites. Formic acid gel packs promised be the answer to the problem, but packaging problems have caused them to be withdrawn from the market until next spring (more in the section on formic acid gel packs).

We have had no positive identification of the small hive beetle in Tennessee colonies to date.

The Boll Weevil Eradication Program (BWEP) started July 31st in Regions 2 and 3 of West Tennessee. Malathion will be aerially applied to all cotton fields acreage in the regions on approximately a weekly schedule until frost or destruction of stalks. If you need to contact the BWEP offices for spray schedules or to inform them of hive locations please see the section on BWEP for details for locations and telephone numbers of the offices.

TENNESSEE STATE APIARISTS REPORT: January 1999 - December 1999

Beekeeping Statistics

	1999	present
No. State Registered Beekeepers	**851**	**936**
No. State Registered Apiaries	**1195**	**1295**
No. State Registered Colonies	**9556**	**10251**
No. Estimated Beekeepers	**2000**	
No. Estimated Colonies	**24000**	

Colony Inspections - 1999

Inspections	*# Colonies*
Association Inspectors	2055
State Apiarist	644
TOTAL	**2699**

American Foulbrood Statistic - 1999

# Apiaries with AFB	***# Colonies with AFB***
6	**11**

% Inspected Colonies with AFB	**0.40% (1998 = 1.7%)**
% Registered Colonies with AFB	**0.14% (1998 = 0.6%)**

No. Apiaries Quarantined	**6**
No. Apiaries Released from Quarantine	**0**
No. Colonies Destroyed	**5**
No. Colonies Treated/Saved	**6**

Colonies Entering State (Certified)	**189**
Colonies Leaving State (Certified)	**5**

AFB was found in 3 counties: Knox, Dyer, and Lake.

The Small Hive Beetle

In June of 1998, the Florida Department of Agriculture and Consumer Services made an announcement that a new pest of honeybees had been discovered in St. Lucie County, Florida. This new pest was a beetle whose larvae were severely damaging beehives. The beetle was identified as the small hive beetle (*Aethina tumida* Murray), an apiary pest in South Africa. This was the first record of the beetle in the Western Hemisphere, although since the report beekeepers in South Carolina have said that they were observed as early as the summer of 1997. The small hive beetle belongs to the Nitidulidae, a family of sap beetles. The beetles are dark brown to black in color and about 3/16 inch long. The larvae are whitish grubs about 7/16 inch long and about 1/16 inch in diameter. Female adult beetles lay eggs in irregular masses in crevices

in the hive. The eggs are similar to the honeybee egg but only 2/3 as long. The beetle eggs hatch in 2 to 3 days. The larvae that hatch from the eggs do the damage to the hive. They burrow through the cell wax eating honey, pollen, and brood. They leave their feces in the honey as they burrow and leaking honey ferments. The larvae take 10 to 16 days to mature and then leave the hive to pupate in the soil. Most emerge as adult beetles after 3 to 4 weeks in the ground. Newly emerged adults can readily fly and are attracted to the combined odors of honey pollen and brood. Adults can live up to 6 months. The adults are only active above 70°F but can remain in a cluster of bees at lower temperatures.

Beekeepers in affected states have been actively controlling the small hive beetle with ground drenches (Gardstar™, permethrin) and with the coumaphos traps in the hive. These treatments seemed to control the beetles in the hive. It was later in the honey house that serious problems arose. Beetles were breeding in the stacked honey supers. The small hive beetles have a rapid development rate during hot temperatures and could cause serious infestations in stacked honey supers within a week . One simple solution discovered at the USDA Bee Research laboratory in Beltsville, MD, has been to circulate air through the combs of the stacked honey supers. The circulating air reduces the relative humidity and prevents beetle eggs from hatching (they desiccate below 50% humidity).

We have not had a positive identification of a small hive beetle in a Tennessee colony to date. **Because of the proximity of Tennessee to affected states, we request that any Tennessee beekeeper that notices any type of beetles or strange larvae in his/her hives, please contact my office at the number or address given at the end of this update.** A Pest Alert sheet is available on the small hive beetle from Dr. John Skinner's office at the University of Tennessee Agricultural Extension Service for Entomology and Plant Pathology (telephone number 423-974-7138).

T.B.A. Convention in the Spring of 2000

The Tennessee Beekeepers Association (T.B.A.) held the spring meeting at the University of Tennessee West TN Experiment Station in Jackson on March 25, 2000. Dr. Ray Nabors (Extension Specialist in Apiculture, University of Missouri) spoke on "Pesticides and Pollination". He covered pesticides that are used in home gardening and their toxicity to honeybees. He also spoke on "Beekeeping in Egypt", showing slides and discussing the methods of beekeeping in Egypt as he experienced when he was in that country. Robert Elwood gave an informative talk on the different races of honeybees and Marlene Thomas gave a presentation on making better use of your honey and hive products. Dr. John Skinner spoke on medications and mite management and I presented the beekeeping inspections statistics for the state.

The T.B.A. Fall Convention will be held in Oak Ridge, Tennessee at the Pollard Auditorium , October 20-21, 2000 (Friday and Saturday). Speakers will include Dr. Hachiro Shimanuki, Dr. James Tew, Mr. Jerry Hayes. For more information contact Marlene Thomas (865-376-1838) or Robert Elwood (865-482-5276).

Tennessee's Section 18 For Coumaphos

Tennessee was granted the first Section 18 for the use of coumaphos in honeybee colonies on February 12, 1999. This meant that Tennessee residents could purchase the coumaphos strips until midnight on February 11, 2000 for use in honeybee colonies. In 2000, we submitted a request to renew our Section 18 for the use of coumaphos for another year**. We were granted our Section 18 renewal on March 8, 2000. Tennessee beekeepers may continue to use Checkmite+® strips until February 1, 2001.** At that time we will be informed by the E.P.A. as to the status of coumaphos and whether we can apply for the Section 18 again.

The strips were originally called Bayer Bee Strips and are now being advertised as **CheckMite+® strips.** The strips are similar to Apistan® strips and can be used in the hive for up to 45 days to control varroa mites. The coumaphos will kill any varroa mites that are resistant to fluvalinate(Apistan®). The strips can also be used to control the small hive beetle, they are 99% effective against it. For small hive beetle control, the strip is cut in half and stapled to a 4 inch by 4 inch piece of cardboard with one side removed (the small hive beetle likes to hide under the cardboard and will come in contact with the miticide). The cardboard is placed in the middle of the bottom board of a honeybee colony for up to 7 days. Any beetles coming into the hive and going under the cardboard will be killed. Please read and follow the label instructions for use of the strips. The strips cannot be used while honey is being produced and wax from the brood nest where the strips have been used cannot be sold.

The Section 18 use of **coumaphos** was classified as a **"non-food" use** (used in brood chambers where honey not produced) in 1999 and 2000 **and no tolerance levels** of the compound were established in either honey or bees wax. In 2000 the EPA required a 14 day period before honey supers could be placed on brood chambers that had been treated with coumaphos strips, **AND prohibited the sale of comb honey from treated hives**. Additional monitoring information recently submitted indicates that the "non-food" use classification is no longer justified and tolerance levels of the compound in honey and beeswax were necessary. **In July of 2000 the EPA have established that coumaphos residues are not to exceed 0.1 part per million (p.m.) in honey and 100 p.m. in**

beeswax. The restriction on the sale of comb honey from treated hives is also lifted.

The strips are available through MannLake Ltd. Supplier (501 S. 1st St., Hackensack, MN 56452-2001, phone: 800-233-6663) and Brushy Mountain Bee Farm (610 Bethany Church Rd., Moravian Falls, NC 28654, phone: 800-233-7929). In Tennessee, strips are available from K.&K. Bee Farm (207 Paul Saylor Rd., Jonesborough, TN 37659, 423-753-4420).

Boll Weevil Eradication Program

In 1998 the USDA **Boll Weevil Eradication Program** (BWEP) was started in West Tennessee. The affected counties included Shelby, Tipton, Fayette, Haywood south of the Hatchie River, Hardeman, McNairy, and Hardin. In 1999, spraying in these counties was based upon boll weevil trap counts where only cotton areas with high boll weevil trap counts were sprayed. Spraying of cotton in other counties in West Tennessee began in the summer of 2000. In a letter to West Tennessee beekeepers sent in August, the following information was supplied by this office.

The Boll Weevil Eradication Program (BWEP) started Monday, July 31 in Regions 2 and 3 of West Tennessee. Region 2 consists of Carroll, Crockett, Decatur, Dyer, Gibson, Henderson, Lauderdale and Madison counties in their entirety; that portion of Haywood County that lies north of the Hatchie River; and that portion of Chester County that lies north of Highway 100. Region 3 consists of Henry, Lake, Obion and Weakley Counties. Ultra Low Volume (ULV) Malathion is being aerially applied to all cotton acreage in the regions on approximately a weekly schedule. Spraying will continue until a killing frost or until cotton stalks are destroyed in the fall. If you can move your bee hives away from cotton, you are encouraged to do so. However, if that is not possible, you were requested to contact the following individuals with the Southeastern Boll Weevil Eradication Foundation (SEBWEF) at one of the following locations:

If your bees are located in Haywood (north of Hatchie) or Lauderdale County, call **Shannon Bridges** in Brownsville at 901-772-8763 or toll-free 877-774-8763.

If your bees are located in Crockett, Chester (North of Hwy. 100), Henderson or Madison counties, call **Lee White** in Alamo at 901-696-3775 or toll-free at 877-696-3822.

If your bees are located in Carroll, Dyer, Gibson, Henry, Lake, Obion or Weakley counties, call **Denise Clayton** in Dyersburg at 901-287-9611 or toll-free 877-774-8764.

These individuals are the officers in charge (OIC) of the BWEP in your area. We urge you to contact them to indicate the exact location of your bees, and to discuss protective measures that may be applied to your individual circumstances.

Where spraying is to occur we recommend that **hives** be **moved or covered** with netting if possible. Honeybees flying through or coming in contact with Malathion spray mist will die. This office has been providing the B.W.E.P. with a list of registered beekeepers in West Tennessee. If there are any questions regarding this program, please contact:

Mr. Boyd Barker, B.W.E.P. Administrator
Tennessee Department of Agriculture
Ellington Agricultural Center
P.O. Box 40627
Nashville, Tennessee 37204
Phone: 615-837-5136
e-mail: jbarker@mail.state.tn.us

Beekeeping Organizations

The following is a list of beekeeping organizations that might be of interest to Tennessee beekeepers. This office strongly suggests that beekeepers join and support their local organization and the state organization.

National Beekeeping Organizations

American Beekeeping Federation
Troy Fore, Sec./Treas.
P.O. Box 1038, Jesup, GA 31598-1038
Ph: 912-427-4233

American Honey Producers Association
Jerry Stroop
Rt. 3, Box 258, Alvin, TX 77511
Ph: 713-992-0802

Regional Beekeeping Organizations

Eastern Apicultural Society of N. America, Inc.
David Bernard, president
26626 Howard Chapel Rd.
Damascus, MD 20872
Ph: 301-414-2317
e-mail: amazingbee@earthlink.net

State Beekeeping Organizations

Tennessee Beekeepers Association
Dwight Tew, president
509 Ellington Drive, Franklin, TN 37064
Ph: 615-791-1578
e-mail: dtew@prodigy.net

Local Beekeeping Organizations

- **Anderson County Beekeepers Association**

  contact: Dwayne Allen, president
  address: P.O. Box 244, 615 Raccoon Valley Rd., Heiskell, TN 37754
  phone #: 423-947-2179 e-mail: apiary@usit.net

- **Blount County Beekeepers Association**

  contact: John Gee, president
  address: 173 Hamil Rd., Friendsville, TN 37737
  phone #: 423-995-2347 e-mail: bekpr@esper.com

- **Campbell County Beekeepers Association**

  contact: Bill Grieve, president
  address: Rt. 2 Box 32A, Indian River Village, Lafollette, TN 37766
  phone #: 423-562-4181

- **Cherokee Beekeepers Association**

  contact: Steve Postell, president
  address: 1211 Mayflower Rd., Sale Creek, TN 37373
  phone #: 423-332-4266

- **Davy Crockett Beekeepers Association**

  contact: Sarah Ledford, president
  address: 550 Huff Lane., Midway, TN 37809
  phone #: 423-235-6577

- **Duck River Beekeepers Association**

  contact: Ed Holcombe, president
  address: P.O. Box 303, Shelbyville, TN 37160
  phone #: 931-684-0826

- **Jackson Area Beekeepers Association**
  contact: Lloyd Crimmins, president
  address: 1360 River Rd., Bolivar, TN 38008
  phone #: 901-658-4553

- **Knox County Beekeepers Association**

  contact: Andy Morris, president
  address: P.O. Box 18451, Knoxville, TN 37928
  phone #: 865-938-7258

- **Loudon County Beekeepers Association**

  contact: Jim Goodman, president
  address: 8633 Highway 11-E, Lenoir City, TN 37771
  phone #: 423-986-8360

- **Memphis Area Beekeepers Association**

  contact: Ken Chrestman, president
  address: 8516 Grand Oaks, Arlington, TN 38002
  phone #: 901-377-1592 e-mail: kchrestman@tsgi.net

- **Nashville Area Beekeepers Association**

  contact: Barry Richards, president
  address: 1020 Carr Cemetery Rd., Cross Plains, TN 37409
  phone #: 615-654-2459 e-mail: beerich@bellsouth.net

- **Putnam County Beekeepers Association**

  contact: Walter Hall, president
  address: 420 Old Qualls Rd., Cookeville, TN 38506
  phone #: 931-537-6219

- **Roane/Morgan County Beekeepers Association**

  contact: Geraldine Hendrickson, president
  address: 794 Dickey Valley Rd., Harriman TN 37748
  phone #: 423-882-9450

- **Sevier County Beekeepers Association**

  contact: John Kelley, president
  address: 613 Sandy Point Lane, Sevierville, TN 37876
  phone #: 423-428-1272

- **Sumner County Beekeepers Association**

  contact: Wayne Vantrease, president
  address: 285 Vantrease Lane, Gallatin, TN 37066
  phone #: 615-452-6675

- **Washington County Beekeepers Association**

  contact: Bob Schmidt, president
  address: 1025 Eastbrook Dr., Kngsport, TN 37663
  phone #: 423-239-8249

- **Wilson County Beekeepers Association**

  contact: Randy Rowe, president
  address: 473 Speck Rd., Lebanon, TN 37087
  phone #: 615-374-2940.

Registration of Colonies

The Apiary Act of 1995 included a section on **registration of apiaries**. In the Act it is stated that new apiaries must be **registered** with the state **within 30 days of establishment**. These apiaries should be **re-registered every 3 years**. The list of registered beekeepers and apiaries is maintained by the State Apiarist and upon registration, the beekeeper receives a unique registration number. This number is the beekeeper's personal registration number and can be used to brand hives and equipment. Registration cards are available from this office, County Extension Agent offices, or from your local beekeeper association.

Re-registration cards were mailed in the spring of this year (2000) to beekeepers that originally registered in 1997. If you received one of these update registration cards, please fill it out and return it to my office. If you had already sent a card to re-register your apiaries, then there is no need to send the card again and we thank you for your diligence.

The Pollination List

On the registration cards is a sentence toward the bottom that reads "Would you like to rent your bees for pollination of crops?". If you answer "No" your name will not appear on the **Pollination List**. If you answer "Yes" your name, address, county, telephone number, and the number of colonies you have available will appear on the Pollination List. Each year in the fall, a list is made from registered beekeeper records that includes all of this information for the **beekeepers willing to offer their pollination services**. The list is sent to County Extension Agents; university extension faculty that work with fruits and vegetables; and the list is passed out list at the Tennessee Fruit and Vegetable Growers Association meeting held each February. This reflects the Department of Agriculture's efforts to partner beekeepers and the fruit and vegetable growers together for their mutual benefit. If you would like to receive a copy of the Pollination List for 2000, please contact this office. We will be putting the Pollination List for 2001 together this fall.

Grants for Association Inspectors

Since 1995, the Department of Agriculture has offered **grants** to local beekeeper associations **for the inspection of honeybee colonies**. The association grants of **$2,000 each**. The grant money is used to pay bee inspectors selected by their association who are willing and qualified to inspect honeybee colonies in the geographical area that the association state has made available the sum of $20,000 to be divided into 10 covers. A grant is obtained for an association by completing a grant contract provided by this office and sending it into the Administration and Grants Division at the Ellington Agricultural Center in Nashville. Since the number of grants is limited to 10, the grants are awarded in the order of receipt of the contracts ("first come first serve basis"). The associations received their grant money in the spring of 2000. The associations that applied for and received grant money for inspections in 2000 are Anderson County, Blount County, Campbell County, Davy Crockett, Knox County, Memphis Area, Nashville Area, Roane/Morgan County, Washington County, and Wilson County. The following list gives the name and telephone numbers of the local inspectors.

Anderson Co.
Dwayne Allen, 865-947-2179
Robert Elwood, 865-482-5276

Blount Co.
Joe Tarwater, 865-977-0910
Jim Galo, 865-983-0290

Campbell Co.
Paul Broyles, 423-562-1118

Davy Crockett
Sarah Ledford, 423-235-6577

Knox Co.
Tess Arnold, 865-693-9381

Memphis Area
Dean Bush, 901-346-7295
Ken Chrestman, 901-377-1592

Nashville Area
Bill Duke, 615-794-1684

Roane/Morgan Co.
Geraldine Hendrickson, 865-882-9450

Washington Co.
Ken Saylor (Wash. Co.), 423-753-4420
Glen Ledford (Unicoi Co.), 423-743-3388
Charles Allen (Carter Co.), 423-543-1549
Nathan Coggins (Wash. Co.), 423-753-9509

Wilson Co.
Tom Hart, 615-237-3592

Items of Interest

Formic Acid Gel Pack

Formic acid gel packs became available this spring for use in honey bee colonies from Better Bee, Inc., 8 Meager Rd., Greenwich , NY 12834 (800-632-3379, 518-692-9669). The formic acid gel packs were reported to kill about 99% of the tracheal mite population and nearly 60% of the varroa mite population if used in two treatments (2 packs) of 2-3 week duration (they evaporate to a powder in this time). Some beekeepers ordered early in the summer and received shipments of the gel packs. In July-August, all of the remaining gel packs were returned to the factory and no more will be available until next spring. The reason for the problem is that the packaging of the gel was "seeping" and the formic acid was being slowly released while in storage. A representative at Better Bee said that this will be corrected with new packaging and the Formic acid gel packs will be available in the spring of 2001. This fall we will have to rely again on grease patties and menthol.

Imported Fire Ant Movement in Tennessee

Earlier this year, I sent from this office letters to beekeepers in Tennessee counties that were quarantined or adjacent to quarantined counties. The letter stated that beehives should be inspected for imported fire ants prior to movement and no ants should be moved with the hives (or any other items in contact with the ground) from quarantined areas to non-quarantined areas. An USDA booklet "Beekeepers: Don't Transport Imported Fire Ants" was included with the letter. Copies of the booklet can be obtained from this office.

Powdered Sugar to Detect Varroa Mites

A report from Nebraska earlier in the year described a method of using powdered sugar to detect varroa mites on honeybees without killing the bees. Powdered sugar is placed on bees in a wide mouth Mason jar with screen on the top. The bees are shaken with the sugar and then the sugar is sifted out through the wire mesh onto a piece of paper. The mites will become unattached from the bees and fall out with the sugar.

Varroa Found in New Zealand

New Zealand had managed to maintain their honeybees free from varroa mites until earlier this year. In April, a significant outbreak of varroa were found in colonies on the North Island (major beekeeping area). With more inspections, more colonies with varroa were found. The government was considering an eradication program.

Africanized Bees Found in Virginia

On July 8th, a colony of bees killed a goat near Lowmoor, Virginia, Allegheny County (near West Va.). On July 18th, the bees were identified as africanized by the Bee Lab in Beltsville. The bees were destroyed and swarm traps were placed in the area to locate any other AHB activity. Speculation was that the AHB could have arrived either by train or truck in the area (depots for both are nearby).

A List of U.T. Agricultural Extension Service Publications of Interest to Beekeepers

Beekeeping in Tennessee #PB697
Varroa Mites in Tennessee #PB1511
Tracheal Mites in Tennessee #SP409-A
Controlling the Greater Wax Moth #PB1111
Identification and Control of Honey Bee Diseases #PB1112
Making a Pollination Contract #PB1516
Honey Bees in A Wall!! What Can be Done? #PB1508

Honeybee Treatment Schedule

Pest	Treatment	Formulation	Remarks
American Foulbrood (AFB) (bacterial disease, spore forming)	Preventative Fall/Spring	TM-Patty (2 patties) Terramycin (TM-25) – use 2 Tablespoons + 2 teaspoons; use 2/3 cup of vegetable shortening; use 1 1/3 cup of granulated sugar; wax paper.	This makes enough to treat two colonies. Previously only 2 Tablespoons of TM-25 were used in the mixture, providing about 600 mg. Of terramycin per patty. The more recent recommendations have been to increase the amount of terramycin per patty to 800 mg. (Mann LakeLtd. sells their patties with 1000 mg. of terramycin). This means that each patty will have 1/3 more terramycin in it, this is why the recipe for 2 patties now contains the extra 2 teaspoons of terramycin (2 Tablespoons + two teaspoons). One can make 12 patties from a 6.4 oz. package of TM-25 by mixing it with 1 lb. vegetable shortening and 2 lbs. of sugar. Mix the TM-25 and the sugar together thoroughly and then mix in the shortening. Divide the mixture into two equal parts and place each part between sheets of wax paper. Press the mixture into a ¼ inch or less pancake. Place one patty on the top bars over the brood nest and make slits in the wax paper for the bees to start eating the mixture. Unused patties can be frozen.
	AFB Prevention	Dusting with terramycin and confectioners sugar. TM-50 1 part : 10 parts confectioners sugar TM-25 1 part : 3 parts confectioners sugar	Mix terramycin powder with powdered confectioner's sugar. Dust three level tablespoons of the mixture around the outside edges of the top bars in each of the brood chambers. Feed this mixture 4 times at weekly intervals in March. Previously it was fed 3 times. Each feeding is approximately 200 mg. of terramycin, so 3 feedings would be 600 mg. of terramycin. The recent recommendations are for 800 mg. of terramycin so 4 feedings are required.
	Eradication of AFB if found	Use TM patties or dusting with powder on all colonies in the apiary. Do not use powder f in or near a honey flow period.	If AFB is present in colonies, contact the State Apiarist for help at 423-594-6098. If AFB infection is not severe and only a few cells of diseased brood are present, then: Move the bees onto undrawn foundation in clean equipment and feed sugar syrup and place terramycin patties on colony. Take the diseased brood comb and dig a pit and burn them. Bury the remains. The other equipment on the colony should be treated as follows. Destroy by burning all wax present in a pit and bury. Boil all contaminated woodenware in a solution of 1 lb. lye to 10 gallons of water. Boil for 20 minutes. ***Caution*** – *lye is extremely caustic and burns can result from contact with it. Rinse all equipment after boiling with fresh water to remove lye residue.* If AFB infection is severe and many cells and complete combs contain diseased brood, then: kill the bees, dig a pit, and burn all combs, bees and equipment. Cover the pit with dirt. Contaminated honey should never be fed back to bees. It can be removed first and sold for human consumption.
European Foulbrood (EFB) (bacterial disease, non-spore forming)	Preventative Fall/Spring	TM- Patty	The same treatment above for AFB will prevent EFB. The use of terramycin kills the bacteria. EFB is non-spore forming.

Pest	Treatment	Formulation	Remarks
Nosema (Spring Dwindling disease) (protozoan disease)	Prevention and medication	Fumadil-B: 1 teaspoon in 1 gallon of sugar syrup	Mix 1 teaspoon of Fumadil-B in a cup of warm (not hot) water. Shake vigorously to get Fumadil powder into solution. Add this to 1 gallon of sugar syrup. In the spring feed 1 gallon of this medicated syrup and in the fall feed 2 gallons of medicated syrup.
Tracheal Mites	Treatment to lower populations. Apply once a month all year.	Vegetable shortening patties	Use the same formula above as used for TM-patties only leave out the terramycin.
	Treat colonies in late summer(by August 10th)	Menthol Crystals	Place 1.8 oz. Menthol packet on each colony in late summer. Do not place over the brood nest. Place to one side on the top bars. If the colony is in full sun, place on bottom board to the back. Reduce the entrance with a reducer and close the ventilation in the top of the colony and any holes in the equipment. This allows for proper colony fumigation.
	Treat colonies in spring and fall.	Formic Acid Gel Pack	Follow the instruction on the label provided when this product becomes available this year.
Varroa Mites	Treat colonies in late summer just after pulling off surplus honey, also in early spring prior to the honey flow.	Apistan Strips	Use 2 strips in each brood chamber that contain bees. Hang the strips between frames on the edge of the bee cluster. Apistan strips must be in contact with brood nest bees at all times during treatment period. If two brood chambers are used for the brood nest, hang the Apistan strips in alternate corners of the cluster in each of the supers. For best chemical distribution, use Apistan strips when daytime temperatures are at least 50°F. Effective control may be achieved by treating colonies in the spring before the first honey flow and in the fall after the honey flow. Allow strips to remain in the colony for a minimum of 42 days (6 weeks) but remove before 56 days (8 weeks).
	Treat colonies in late summer/fall of 1999 only.	CheckMite+ Strips (Bayer Bee Strips, coumaphos strips)	Tennessee residence are allowed to purchase these strips under a special Section 18 Emergency Use granted by the EPA. They are only available for one year until February 2000 Unless Bayer Corp. obtains a Section 3 permit. These strips are used similar to Apistan. Use 2 strips per brood chamber when no honey is being made. The active compound, coumaphos, is an organo-phosphate and should be handle carefully. Wear gloves and follow the manufacturers recommendations. The strips should be left in for 42 – 45 days. These strips will kill any varroa mites that are resistant to Apistan strips (fluvalinate). No wax from the brood area of treated colonies can be sold, it must be destroyed.

The Small Hive Beetle (SHB)	Treat colonies when the temperature is above 70°F for adult beetles.	CheckMite+ Strips	Again these strips are available to Tennessee residents until February of 2000. For the SHB a strip is cut in half and one-half is stapled to a piece of 4 in. by 4 in. cardboard that has had one side peeled off. The cardboard with the strip face down is placed in the middle of the bottom board for up to 7 days. Two treatments a year are allowed. Adult SHB upon entering the hive will hide under the cardboard and be killed. Follow the manufacturer's directions. Gardstar® insecticide may be used as a ground treatment around colonies to kill any larvae that may be pupating in the soil.

Pest	Treatment	Formulation	Remarks
Wax Moth	Treat empty dry comb only.	Para Moth (100% para dichlorobenzene, PDB) (not moth balls which are naphthalene).	The supers should be stacked as tightly as possible. Special precaution should be taken to ensure that the gas, which is heavier than air, cannot escape at the bottom of the stack. A few newspapers on the floor at the bottom of the stack will work. Tape all cracks between supers. Do not fumigate more than 5 deep supers or 10 shallow supers at a time. To each stack, add 6 tablespoons (3 oz.) of Para Moth crystals on the top bars separated by a piece of cardboard. Then put a top cover on tightly. The stacks should be checked for crystals at intervals of every 2 to 3 weeks. Add crystals when little or none are present. Para Moth only kills the larvae (weevils) and not the eggs, and this is why it must be present at all times during storage.
	Treat empty dry comb only.	Cold Treatment	Freeze supers for 12 hours and let supers re-warm in an area free of wax moths. Then put the supers in plastic garbage bags and seal tightly.

Calendar of Treatments

January	February	March	April	May	June	July	August	September	October	November	December
VEG. PATTY	**TM PATTY**	VEG. PATTY	VEG. PATTY	VEG. PATTY	VEG. PATTY	VEG. PATTY	**TM PATTY**	VEG. PATTY	VEG. PATTY	VEG. PATTY	VEG. PATTY
	*** APISTAN STRIPS**						**** APISTAN STRIPS or CHECKMITE+ STRIPS** (on EPA Section 18 Approval)				
	FUMADIL-B 1 GALLON SYRUP						**Or FORMIC ACID GEL**				
							MENTHOL PACKET				
							FUMADIL-B 2 GALLONS SYRUP				

***** Put Apistan on colonies a minimum of 6weeks prior to honey flow.
****** Place Apistan on colonies as soon as honey supers are removed.

Treatment Summary:

- TM patties in early spring and the late summer or early fall for the prevention of **AFB**.
- Place vegetable shortening patties on colonies once a month – keeps **tracheal mite** population below 20%.
- Place Menthol packet in colonies in mid-August to control **tracheal mites**.
- THE USE OF **FORMIC ACID GEL** WILL ELIMINATE THE NEED FOR MENTHOL PACKETS AND VEGETABLE SHORTENING PATTIES (**tracheal mite** prevention) BUT NOT THE NEED FOR TM PATTIES (**AFB** prevention).
- Place Apistan or CheckMite+ in colonies shortly after you pull off honey from colonies in late summer or early fall and in early spring for **varroa mite** control.

Optional Treatment:

- Treat colonies with Fumadil-B twice in early fall and once in early spring for **Nosema**.

******* Use only EPA approved chemicals and follow all label directions.

Addresses of Interest

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